

Area's of Territorial Responses and Distress

Displays of the Western Kingbird

(Tyrannus verticalis) While Nesting.

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## INTRODUCTION.

As a measure for the protection of their young, some bird species establish territories which surround their nests. A territorial behavior is practiced within the territory in response to a stranger within his territory. A determinate factor of this behavior is the condition of the young. In the Western Kingbird (Tyrannus verticalis) territorial behavior changes as the young develop. A study was conducted on a pair of Kingbirds and their young to illustrate this changed behavior. The study will examine what is the territorial area of the Kingbird and:

- 1) territorial responses and displays of the parent Kingbirds while the young were in the nestling and fledgling condition, 2) the lack of territorial responses and display by the fledglings when the parent birds were absent.

## MATERIALS AND METHODS

This study was conducted over an eleven day period ranging from June 21 to July 1, 1973, on the Malheur National Wildlife Refuge. The data presented were collected by field observations of a pair of nesting Kingbirds, and later their young. The study area was the ranch at the head of the Cole Island Dike. Their nest was located in a deciduous tree, 8 feet up, in the front yard of the ranch house.

The observation of the nest area took place during the nestling and fledgling conditions, with the parents location within the nesting area, during the two conditions. In the nestling condition six transects were carried out in relation to the nest (Figure 1), to determine territory in relation to the nest. Territorial areas were determined by call responses and distress displays of the parents. A similar transect was carried out in the fledgling condition. A third transect was carried out in the fledgling condition, with the parents not in the immediate nesting area, to determine the fledgling's awareness of the boundaries established by the parent Kingbirds.

Periods of observation were from 4:30 AM to 9:15 PM. No observations were recorded outside of this daytime period.

## RESULTS

During the nestling condition (June 21-26), with the parent Kingbirds in the nest area, call responses to a stranger in the territory were elicited at 6-70 feet (Figure 1) from the nest. Rapid calling accompanied by distress displays, were elicited at 30-35 feet (Figure 2), from the nest.

In fledgling condition, with the parents present call response was first elicited at 35-40 feet (Figure 3). Rapid calling and distress displays were elicited at 10-15 feet (Figure 4).

The fledglings, in the absence of the parents, gave no call response to a stranger within the territory. Nor did they exhibit any distress displays. This was observed for both the boundaries the parents had established.

## DISCUSSION

The parent Kingbirds displayed the greatest call response and distress displays to a stranger in their territory during the nestling condition. The nest during this condition was 8 feet off the ground. A possible explanation of this behavior is the parents awareness of the vulnerability of the nest to predation. Height from the ground coupled with the altricial nestlings accounts for this possibility of predation. Call response to a stranger could also be interpreted as a communication or warning between the Kingbirds of a territorial transgression and the need for protection of the nestlings. The call response could also serve as a warning to a stranger entering their territory.

The variance in the territorial boundaries, nestling and fledgling, seems accountable primarily to the fact the fledglings are no longer bound to a nest at a low height and therefore less possibility of predation. Also the fact that the fledglings are no longer altricial and can exert some effort towards self-preservation. The boundaries also represent the fact the parent Kingbirds recognize the changing condition of their young.

The fact fledglings did not respond to the boundaries in their parent's absence would seem to indicate non-recognition of boundaries. The fledglings responded to the boundaries only in the presence of their parents. Boundaries and related behavior would seem to be learned at least in part.

These boundaries must also be interpreted as nesting boundaries established by the parents. The fledglings role in terms of this territory would then be quite different from the parents.

During the fledgling condition, the foraging time of the parents increased. The smaller boundaries are possibly related to this increased activity. The energy expended on increased foraging could possibly reduce the energy of the parents towards maintenance of the larger nesting territory.

#### SUMMARY

1) A study was conducted at the Melheur National Wildlife Refuge on the nesting territory of a pair of Kingbirds and their young.

2) Parent Kingbird territory sizes were observed for both the nestling and fledgling condition.

3) Fledglings responses to territory were also observed.

4) The results were:

a) in nestling condition parents call response to a stranger in their territory at 60-70 feet. Rapid calling and distress display at 30-50 feet.

b) in fledgling condition, the parents call response was at 40 feet. Rapid calling and distress display at 15 feet.

c) The fledglings, in the absence of the parents, gave no call response or distress display to territory.

A couple of conclusions:

A) Parent Kingbirds maintain a greater territory during the nestling condition than in the fledgling condition.

B) Fledgling Kingbirds are unresponsive (in call and display) to territory unless in the presence of parent Kingbirds.

## TRANSECT FIGURES

~~FIGURE 1~~ ON NEST AREA DURING THE NESTLING CONDITION

FIGURE 1: RESPONSE CALL

	A	B	C	$\bar{X}$
1	63	64	64	64'
2	66	65	60	63'
3	65	66	65	65'
4	70	64	66	68'
5	65	65	65	65'
6	64	65	65	65'

FIG. 2: DISTURBANCE DISPLAY

	A	B	C	$\bar{X}$
1	30	30	30	30'
2	31	35	35	33'
3	32	32	31	32'
4	35	34	35	35'
5	35	35	35	35'
6	30	30	30	30'

## TRANSECT FIGURES

~~FIGURE 3~~ ON NEST AREA DURING THE FLEDGLING CONDITION

FIGURE 3: RESPONSE CALL

	A	B	C	$\bar{X}$
1	35	35	35	35'
2	40	40	40	40'
3	35	37	35	36'
4	35	36	35	36'
5	35	35	35	35'
6	40	40	40	40'

FIG. 4: DISTURBANCE DISPLAY

	A	B	C	$\bar{X}$
1	12	12	10	11'
2	12	12	12	12'
3	10	10	10	10'
4	15	14	15	15'
5	10	13	10	11'
6	15	12	15	14'

- MEAGER -

~~FIGURE 1~~